

Independent Energy Producers Association's 37th Annual Meeting

California Energy Landscape: Where Are We?



Robert B. Weisenmiller
October 2, 2018
California Energy Commission



2016 Greenhouse Gas Inventory

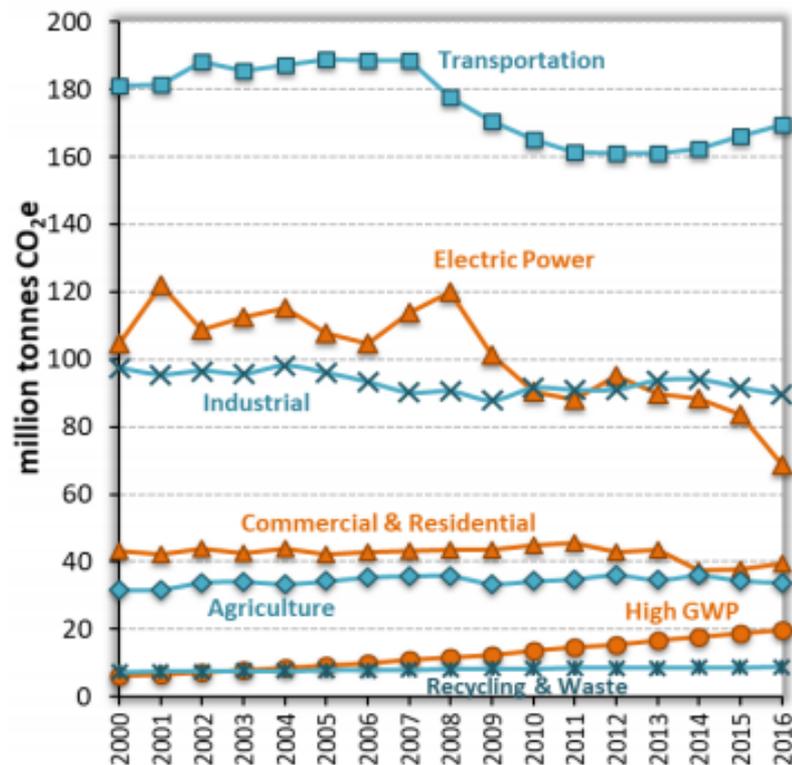


Figure 2. Trends in California GHG Emissions. This figure shows changes in emissions by sector between 2000 and 2016. Emissions are organized by the categories in the AB 32 Scoping Plan.

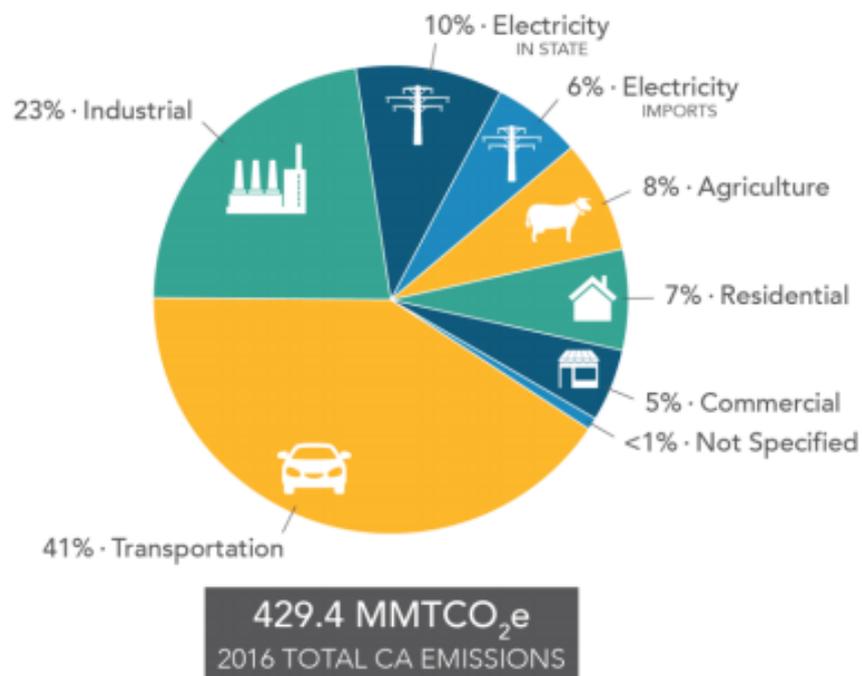
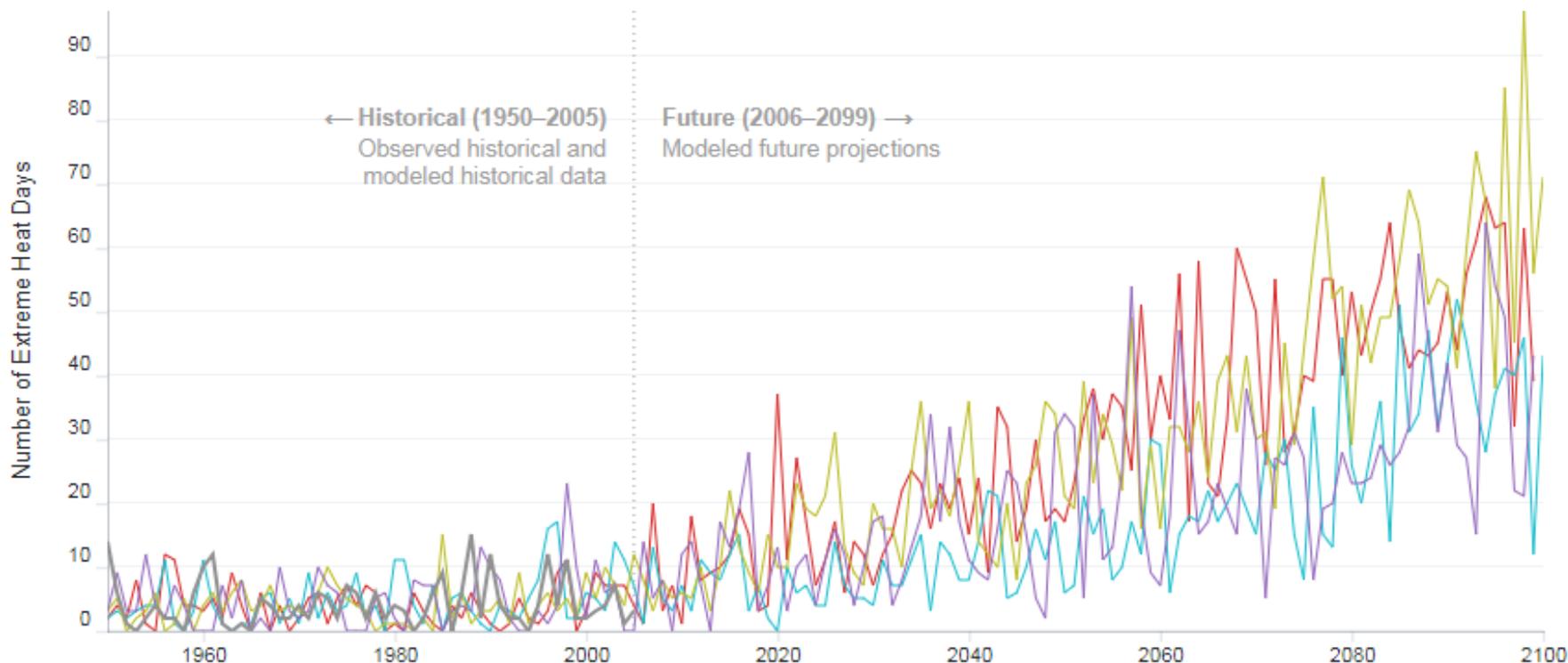


Figure 3. 2016 GHG Emissions by Sector.** This figure shows the relative size of 2016 emissions by sector. Emissions are organized by the categories in the AB 32 Scoping Plan.



California Climate Change Impacts: Greater Variability and Higher Extremes

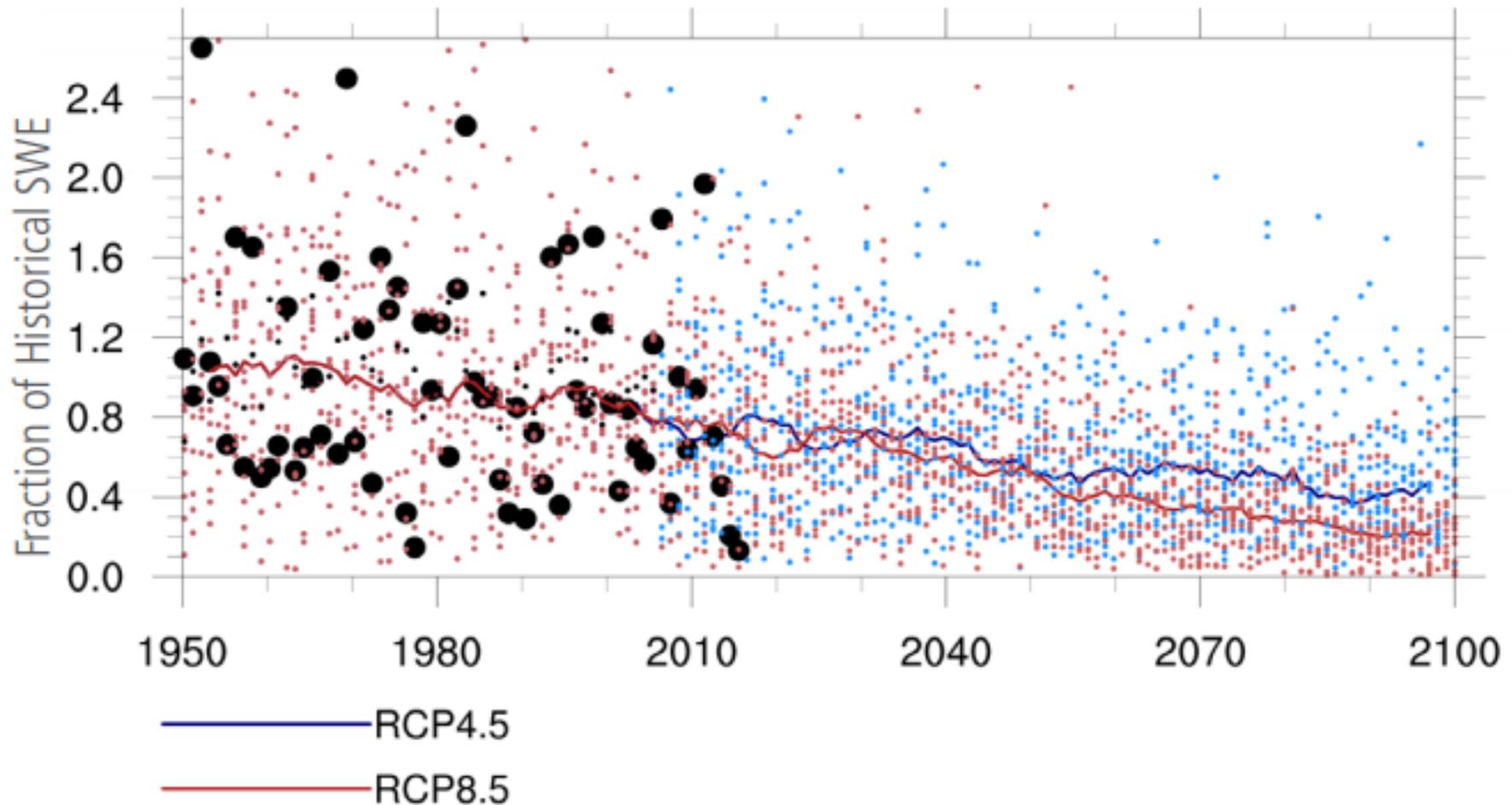
Days per year when maximum temperature in Sacramento is projected to be above 103.8 °F under the RCP 8.5 scenario (emissions rise strongly through 2050 and plateau around 2100).



Source: Cal-Adapt. Data: LOCA Downscaled Climate Projections (Scripps Institution of Oceanography), Gridded Historical Observed Meteorological and Hydrological Data (University of Colorado, Boulder).



California Climate Change Impacts: Average Water Supply from Snowpack is Declining

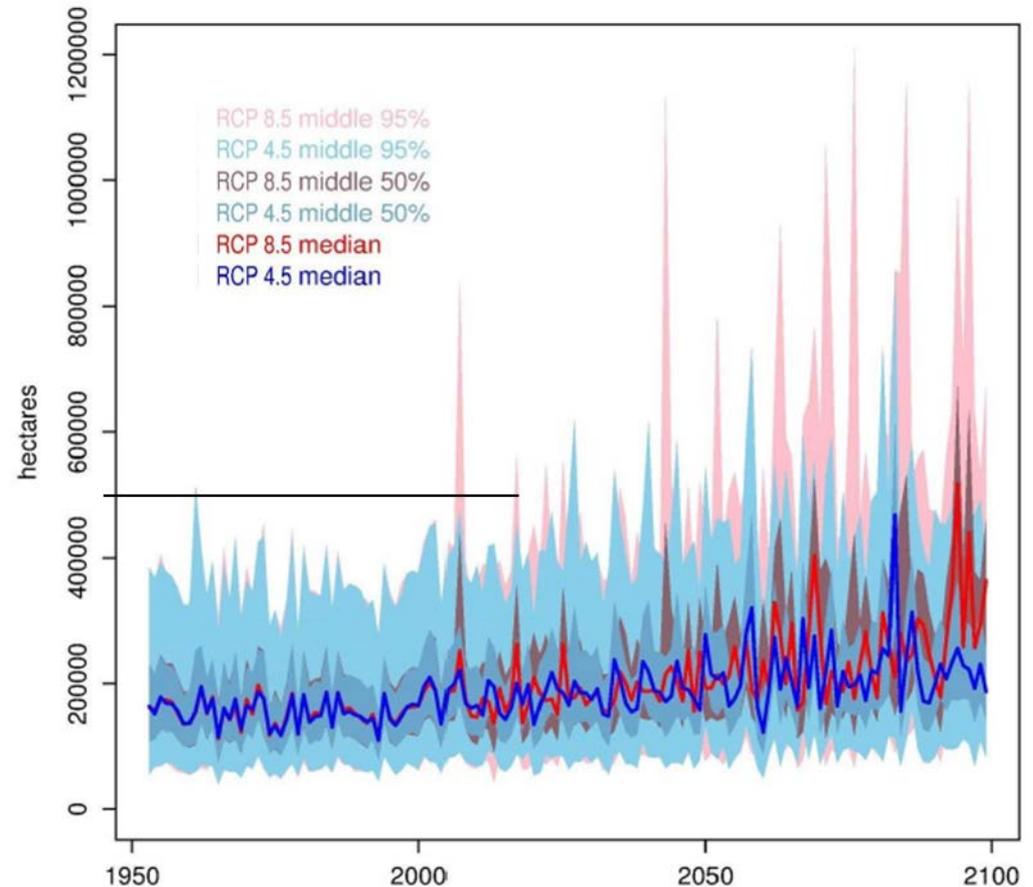


Source: Pierce, D. W., J. F. Kalansky, and D. R. Cayan, (Scripps Institution of Oceanography). 2018. Climate, Drought, and Sea Level Rise Scenarios for the Fourth California Climate Assessment. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CNRA-CEC-2018-006.



California Climate Change Impacts: Extreme Wildfires Expected to Increase

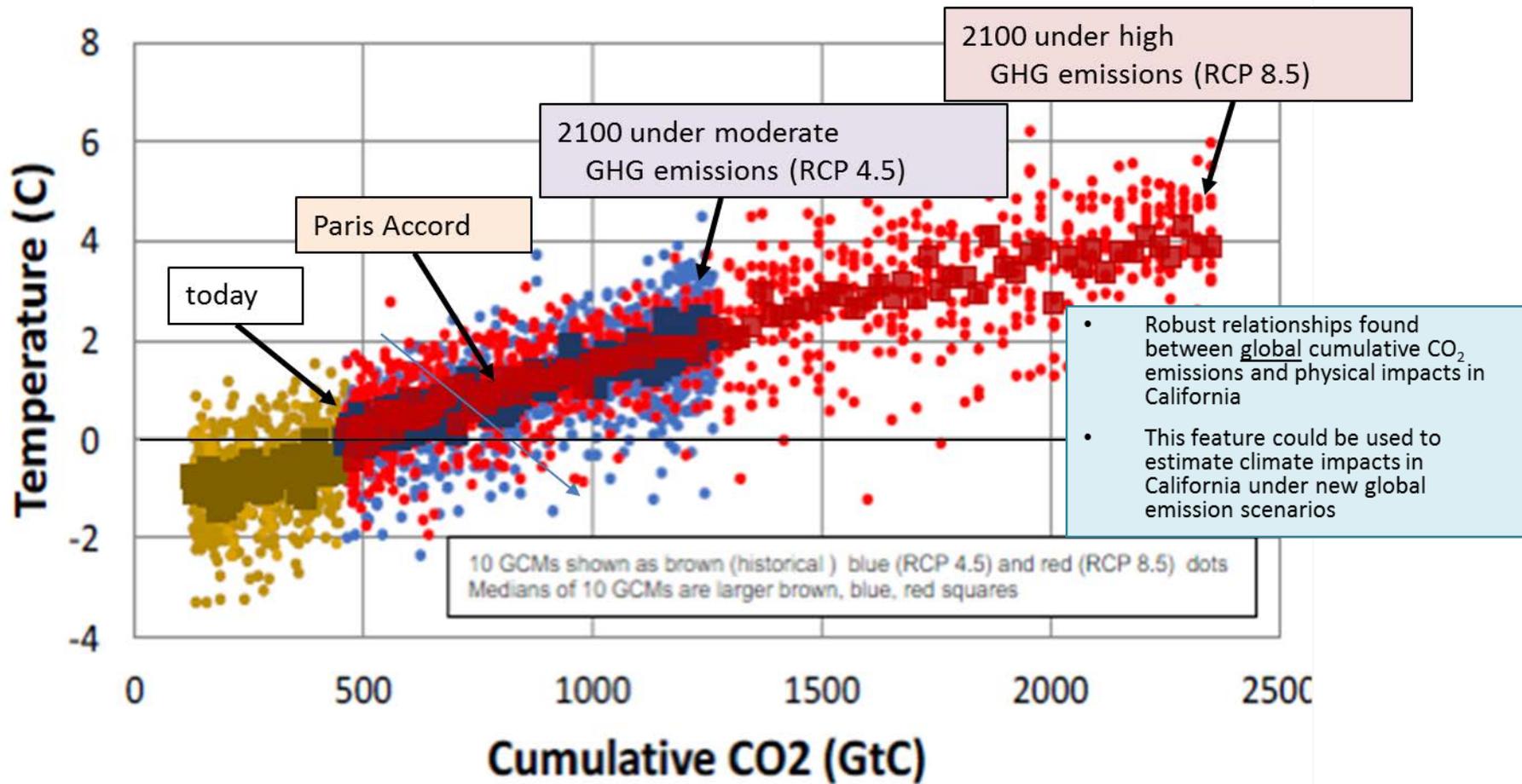
- In 2017, California wildfires burned about 500,000 hectares (horizontal black line)
- RCP4.5 (blue) vs 8.5 (brown, red, pink): median, 50 percentile, and 95 percentile



Source: Westerling (2018). *Wildfire Simulations for the Fourth California Climate Assessment: Projecting Changes in Extreme Wildfire Events with a Warming Climate*



Adaptation Needs Will be Less if Global GHG Emissions are Greatly Reduced





5 Million Zero Emission Vehicles by 2030

Executive Order:

250,000 chargers

200 H₂ stations

Recent Laws:

Assess needs

Reduce grid costs

Reduce TNC GHG

Offer incentives

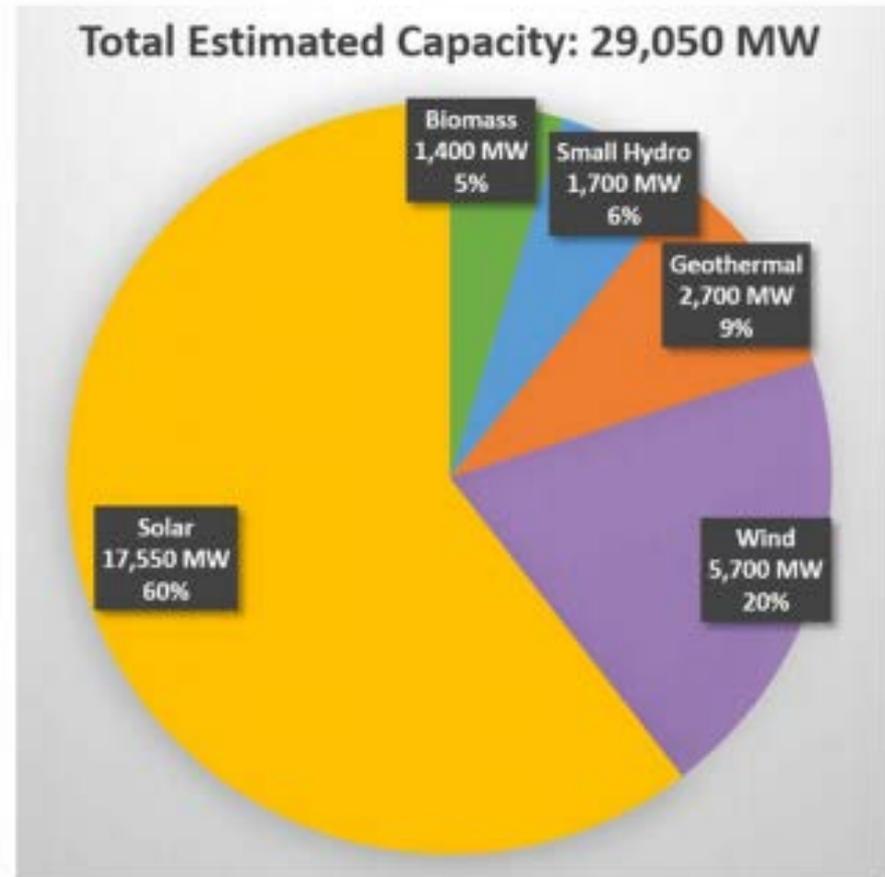
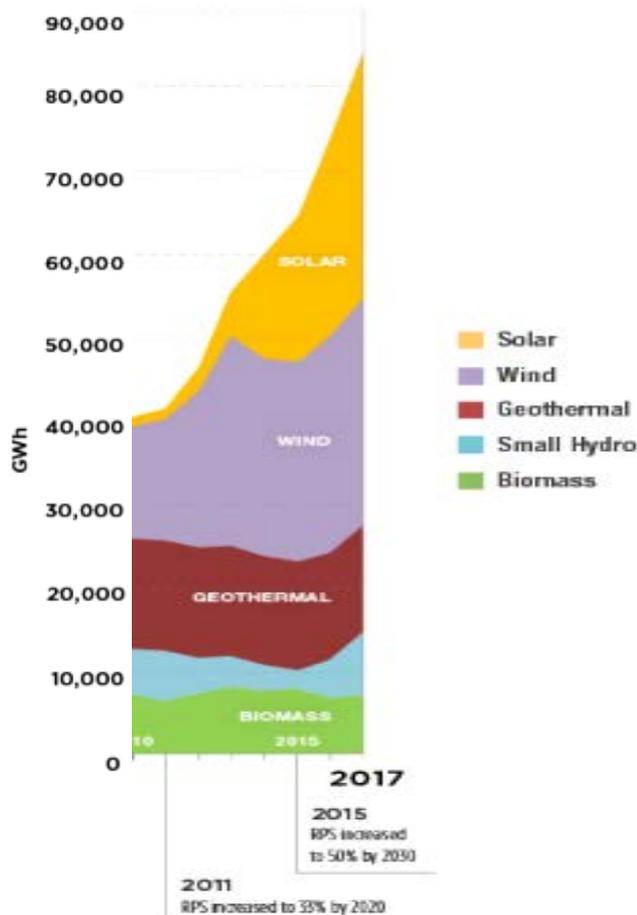
HOV access





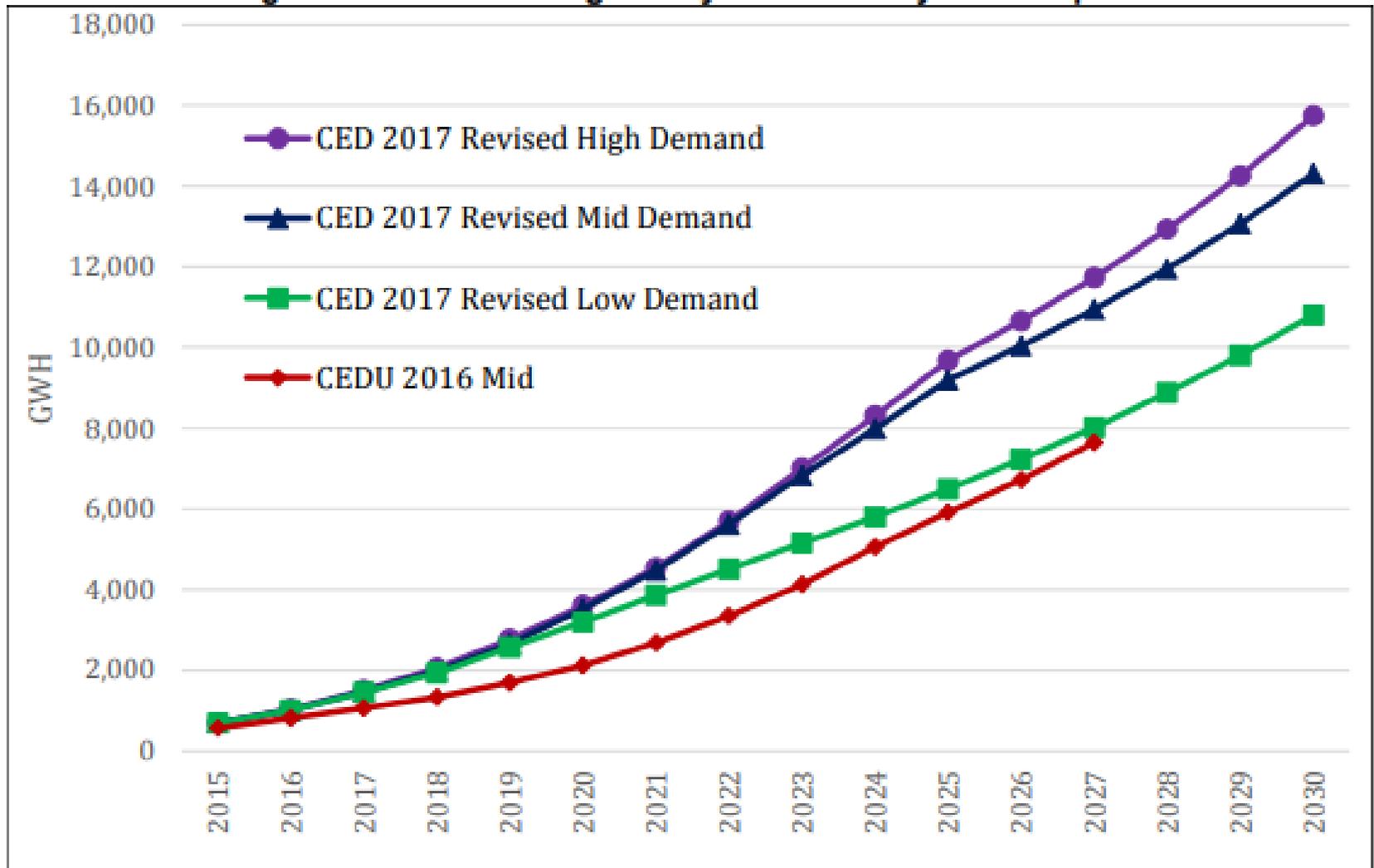
Renewable Progress Under EGB

Renewable Generation by Resource Type
2010-2017



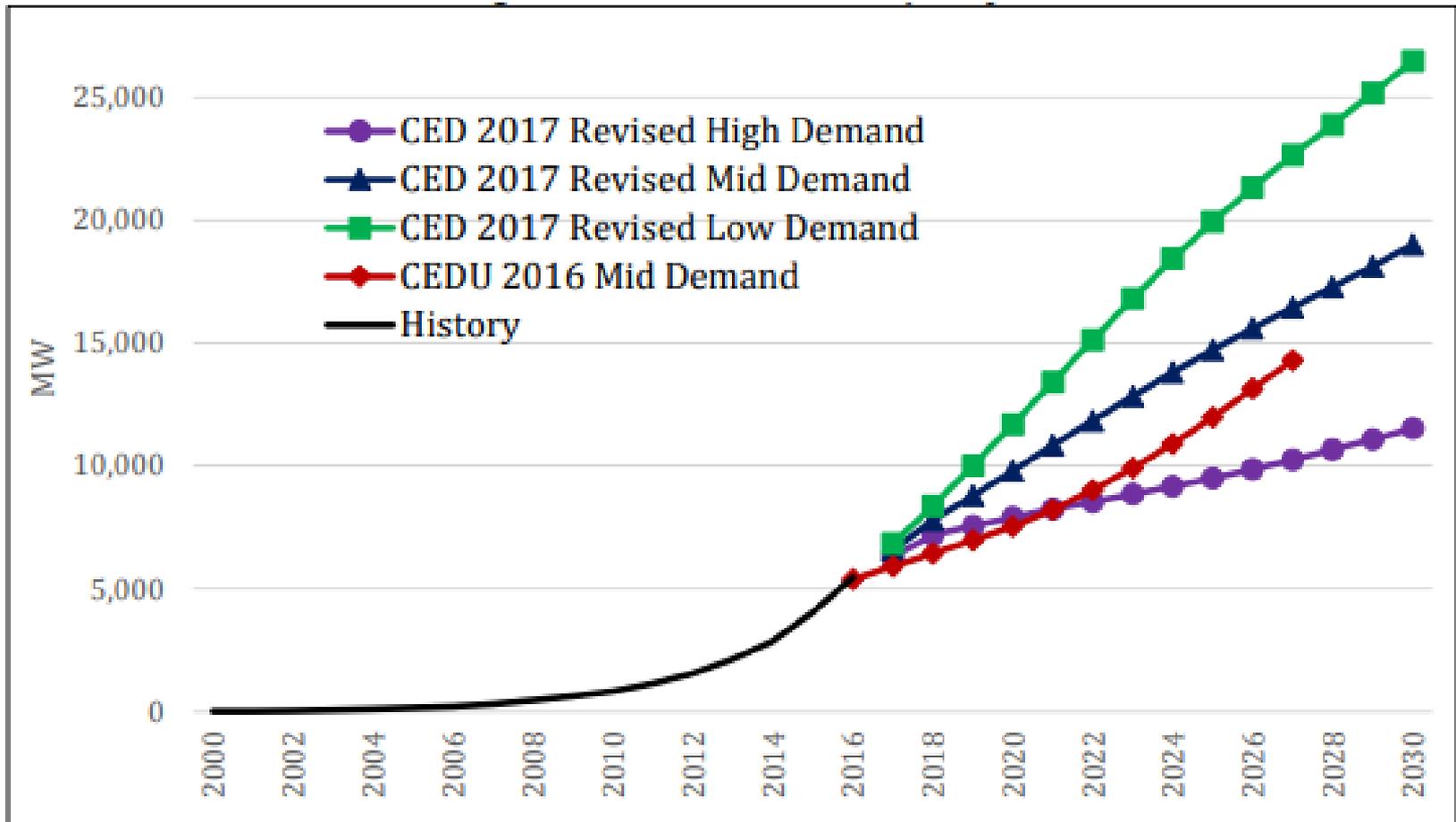


Light-Duty EV Charging



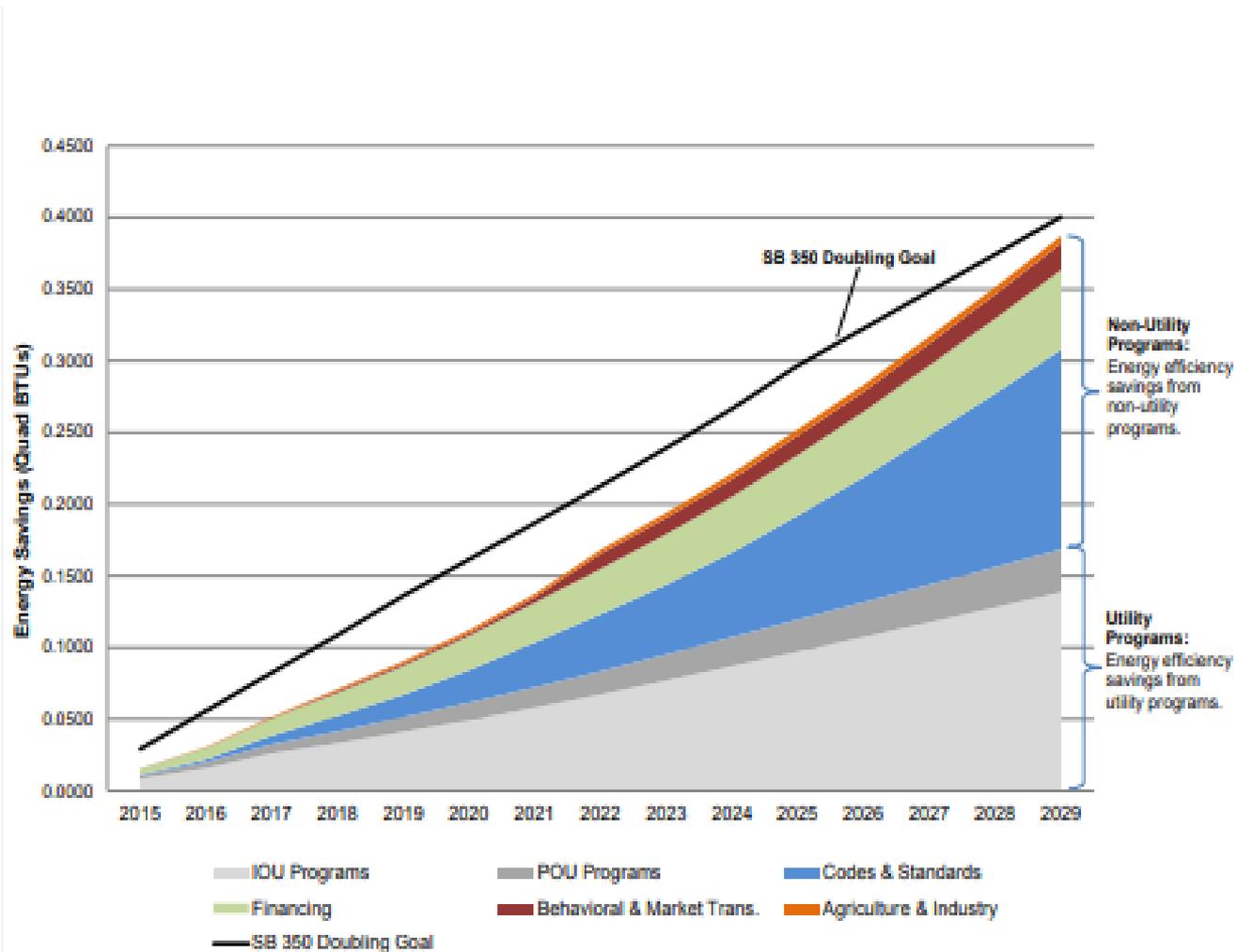


Statewide PV Capacity





Combined Electricity and Natural Gas Savings Projections (Quad BTUs)





2019 Residential Building Energy Efficiency Standards

\$19,000

SAVINGS OVER A
30 YR. MORTGAGE

INITIAL COST
\$9,500



SOLAR PHOTOVOLTAIC SYSTEM

Promote installing solar photovoltaic systems in newly constructed residential buildings. The systems include smart inverters with optional battery storage. This will increase the self-utilization of the electricity generated to power the home's electricity loads including plug-in appliances. California is the first state in the nation to require smart systems on homes.



DEMAND RESPONSE COMPLIANCE OPTIONS

Encourage battery storage and heat pump water heaters that shift the energy use of the house from peak periods to off-peak periods. Utilities moving to time-of-use pricing assists the grid to meet the state's climate change goals and helps homes reduce energy bills.



HEALTHY INDOOR AIR QUALITY

Enable using highly efficient filters that trap hazardous particulates from both outdoor air and cooking and improve kitchen ventilation systems. Moving air around and in and out of the home while filtering out allergens and other particles makes the home healthier.



BUILDING ENVELOPE

Strengthen insulation in attics, walls and windows to improve comfort and energy savings. Keeping the heat out during the summer and warm air during the winter makes a home more resilient to climate change.

